

# TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

## ANALYTICAL REPORT

TestAmerica Laboratories, Inc.

TestAmerica Nashville

2960 Foster Creighton Road

Nashville, TN 37204

Tel: 800-765-0980

TestAmerica Job ID: NUJ3361

Client Project/Site: PASUS-Dimock-AMEC-102011

Client Project Description: PASUS - VARIOUS SITES

For:

Cabot Oil

Five Penn Center West, Suite 4101

Pittsburg, PA 1527641

Attn: Phillip Levasseur



Authorized for release by:

11/7/2011 2:25:32 PM

Ryan Fitzwater

Project Manager

[Ryan.Fitzwater@testamericainc.com](mailto:Ryan.Fitzwater@testamericainc.com)

### LINKS

Review your project  
results through

TotalAccess

Have a Question?



Visit us at:

[www.testamericainc.com](http://www.testamericainc.com)

*This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.*

*Results relate only to the items tested and the sample(s) as received by the laboratory.*

# Table of Contents

|                                 |    |
|---------------------------------|----|
| Cover Page . . . . .            | 1  |
| Table of Contents . . . . .     | 2  |
| Sample Summary . . . . .        | 3  |
| Case Narrative . . . . .        | 4  |
| Definitions . . . . .           | 5  |
| Client Sample Results . . . . . | 6  |
| QC Sample Results . . . . .     | 7  |
| QC Association . . . . .        | 9  |
| Chronicle . . . . .             | 10 |
| Method Summary . . . . .        | 11 |
| Certification Summary . . . . . | 12 |
| Chain of Custody . . . . .      | 13 |



## Sample Summary

Client: Cabot Oil  
Project/Site: PASUS-Dimock-AMEC-102011

TestAmerica Job ID: NUJ3361

| Lab Sample ID | Client Sample ID | Matrix | Collected      | Received       |
|---------------|------------------|--------|----------------|----------------|
| NUJ3361-01    | Well 1           | Water  | 10/25/11 11:00 | 10/26/11 07:35 |

1

2

3

4

5

6

7

8

9

10

11

12

Case Narrative

Client: Cabot Oil  
Project/Site: PASUS-Dimock-AMEC-102011

TestAmerica Job ID: NUJ3361

Job ID: NUJ3361

Laboratory: TestAmerica Nashville

| Narrative |          |      |                          |                     |
|-----------|----------|------|--------------------------|---------------------|
| WELL 1    | 10/25/11 | 1100 | Ex. 6 - Personal Privacy | 200.00-1,048.0,000. |

- 1
- 2
- 3
- 4
- 5
- 6
- 7
- 8
- 9
- 10
- 11
- 12

## Definitions/Glossary

Client: Cabot Oil  
Project/Site: PASUS-Dimock-AMEC-102011

TestAmerica Job ID: NUJ3361

### Glossary

| Abbreviation   | These commonly used abbreviations may or may not be present in this report.                                |
|----------------|--|
| ☼              | Listed under the "D" column to designate that the result is reported on a dry weight basis                 |
| %R             | Percent Recovery   |
| CNF            | Contains no Free Liquid  |
| DL, RA, RE, IN | Indicates a Dilution, Reanalysis, Re-extraction, or additional Initial metals/anion analysis of the sample |
| EDL            | Estimated Detection Limit  |
| EPA            | United States Environmental Protection Agency  |
| MDL            | Method Detection Limit   |
| ML             | Minimum Level (Dioxin)   |
| ND             | Not detected at the reporting limit (or MDL or EDL if shown)   |
| PQL            | Practical Quantitation Limit   |
| RL             | Reporting Limit  |
| RPD            | Relative Percent Difference, a measure of the relative difference between two points                       |
| TEF            | Toxicity Equivalent Factor (Dioxin)  |
| TEQ            | Toxicity Equivalent Quotient (Dioxin)  |

# Client Sample Results

Client: Cabot Oil  
Project/Site: PASUS-Dimock-AMEC-102011

TestAmerica Job ID: NUJ3361

Client Sample ID: Well 1

Lab Sample ID: NUJ3361-01

Date Collected: 10/25/11 11:00

Matrix: Water

Date Received: 10/26/11 07:35

## Method: RSK 175 - Methane, Ethane, and Ethene by GC - Dissolved

| Analyte   | Result | Qualifier | RL   | MDL | Unit | D | Prepared       | Analyzed       | Dil Fac |
|-----------|--------|-----------|------|-----|------|---|----------------|----------------|---------|
| Ethane    | 359    |           | 5.00 |     | ug/L |   | 10/27/11 12:30 | 10/27/11 13:37 | 1.00    |
| Propane   | ND     |           | 5.00 |     | ug/L |   | 10/27/11 12:30 | 10/27/11 13:37 | 1.00    |
| Isobutane | ND     |           | 10.0 |     | ug/L |   | 10/27/11 12:30 | 10/27/11 13:37 | 1.00    |
| n-Butane  | ND     |           | 5.00 |     | ug/L |   | 10/27/11 12:30 | 10/27/11 13:37 | 1.00    |

| Surrogate | %Recovery | Qualifier | Limits   | Prepared       | Analyzed       | Dil Fac |
|-----------|-----------|-----------|----------|----------------|----------------|---------|
| Acetylene | 112       |           | 62 - 124 | 10/27/11 12:30 | 10/27/11 13:37 | 1.00    |

## Method: RSK 175 - Methane, Ethane, and Ethene by GC - Dissolved - RE2

| Analyte | Result | Qualifier | RL  | MDL | Unit | D | Prepared       | Analyzed       | Dil Fac |
|---------|--------|-----------|-----|-----|------|---|----------------|----------------|---------|
| Methane | 15200  |           | 200 |     | ug/L |   | 10/27/11 12:30 | 10/27/11 13:49 | 40.0    |

# QC Sample Results

Client: Cabot Oil  
Project/Site: PASUS-Dimock-AMEC-102011

TestAmerica Job ID: NUJ3361

## Method: RSK 175 - Methane, Ethane, and Ethene by GC

Lab Sample ID: 11J6413-BLK1

Matrix: Water

Analysis Batch: U018963

Client Sample ID: Method Blank

Prep Type: Dissolved

Prep Batch: 11J6413\_P

| Analyte   | Blank Result    | Blank Qualifier | RL       | MDL | Unit | D | Prepared       | Analyzed       | Dil Fac |
|-----------|-----------------|-----------------|----------|-----|------|---|----------------|----------------|---------|
| Methane   | ND              |                 | 5.00     |     | ug/L |   | 10/27/11 12:30 | 10/27/11 13:05 | 1.00    |
| Ethane    | ND              |                 | 5.00     |     | ug/L |   | 10/27/11 12:30 | 10/27/11 13:05 | 1.00    |
| Propane   | ND              |                 | 5.00     |     | ug/L |   | 10/27/11 12:30 | 10/27/11 13:05 | 1.00    |
| Isobutane | ND              |                 | 10.0     |     | ug/L |   | 10/27/11 12:30 | 10/27/11 13:05 | 1.00    |
| n-Butane  | ND              |                 | 5.00     |     | ug/L |   | 10/27/11 12:30 | 10/27/11 13:05 | 1.00    |
| Surrogate | Blank %Recovery | Blank Qualifier | Limits   |     |      |   | Prepared       | Analyzed       | Dil Fac |
| Acetylene | 105             |                 | 62 - 124 |     |      |   | 10/27/11 12:30 | 10/27/11 13:05 | 1.00    |

Lab Sample ID: 11J6413-BS1

Matrix: Water

Analysis Batch: U018963

Client Sample ID: Lab Control Sample

Prep Type: Dissolved

Prep Batch: 11J6413\_P

| Analyte   | Spike Added   | LCS Result    | LCS Qualifier | Unit | D | %Rec | Limits   |
|-----------|---------------|---------------|---------------|------|---|------|----------|
| Methane   | 273           | 264           |               | ug/L |   | 97   | 80 - 120 |
| Ethane    | 512           | 495           |               | ug/L |   | 97   | 80 - 120 |
| Propane   | 762           | 708           |               | ug/L |   | 93   | 80 - 120 |
| Isobutane | 993           | 941           |               | ug/L |   | 95   | 80 - 120 |
| n-Butane  | 993           | 948           |               | ug/L |   | 96   | 80 - 120 |
| Surrogate | LCS %Recovery | LCS Qualifier | Limits        |      |   |      |          |
| Acetylene | 104           |               | 62 - 124      |      |   |      |          |

Lab Sample ID: 11J6413-MS1

Matrix: Water

Analysis Batch: U018963

Client Sample ID: Matrix Spike

Prep Type: Dissolved

Prep Batch: 11J6413\_P

| Analyte   | Sample Result          | Sample Qualifier       | Spike Added | Matrix Spike Result | Matrix Spike Qualifier | Unit | D | %Rec | Limits   |
|-----------|------------------------|------------------------|-------------|---------------------|------------------------|------|---|------|----------|
| Methane   | ND                     |                        | 273         | 273                 |                        | ug/L |   | 100  | 46 - 142 |
| Ethane    | ND                     |                        | 512         | 500                 |                        | ug/L |   | 98   | 71 - 120 |
| Propane   | ND                     |                        | 762         | 715                 |                        | ug/L |   | 94   | 70 - 130 |
| Isobutane | ND                     |                        | 993         | 955                 |                        | ug/L |   | 96   | 70 - 130 |
| n-Butane  | ND                     |                        | 993         | 961                 |                        | ug/L |   | 97   | 70 - 130 |
| Surrogate | Matrix Spike %Recovery | Matrix Spike Qualifier | Limits      |                     |                        |      |   |      |          |
| Acetylene | 108                    |                        | 62 - 124    |                     |                        |      |   |      |          |

Lab Sample ID: 11J6413-MSD1

Matrix: Water

Analysis Batch: U018963

Client Sample ID: Matrix Spike Duplicate

Prep Type: Dissolved

Prep Batch: 11J6413\_P

| Analyte   | Sample Result | Sample Qualifier | Spike Added | Matrix Spike Dup Result | Matrix Spike Dup Qualifier | Unit | D | %Rec | Limits   | RPD | Limit |
|-----------|---------------|------------------|-------------|-------------------------|----------------------------|------|---|------|----------|-----|-------|
| Methane   | ND            |                  | 273         | 274                     |                            | ug/L |   | 100  | 46 - 142 | 0.4 | 33    |
| Ethane    | ND            |                  | 512         | 501                     |                            | ug/L |   | 98   | 71 - 120 | 0.3 | 30    |
| Propane   | ND            |                  | 762         | 714                     |                            | ug/L |   | 94   | 70 - 130 | 0.1 | 30    |
| Isobutane | ND            |                  | 993         | 946                     |                            | ug/L |   | 95   | 70 - 130 | 1   | 30    |
| n-Butane  | ND            |                  | 993         | 943                     |                            | ug/L |   | 95   | 70 - 130 | 2   | 30    |



## QC Sample Results

Client: Cabot Oil  
Project/Site: PASUS-Dimock-AMEC-102011

TestAmerica Job ID: NUJ3361

### Method: RSK 175 - Methane, Ethane, and Ethene by GC (Continued)

Lab Sample ID: 11J6413-MSD1

Matrix: Water

Analysis Batch: U018963

Client Sample ID: Matrix Spike Duplicate

Prep Type: Dissolved

Prep Batch: 11J6413\_P

| Surrogate | Matrix Spike Dup | Matrix Spike Dup | Limits   |
|-----------|------------------|------------------|----------|
|           | %Recovery        | Qualifier        |          |
| Acetylene | 101              |                  | 62 - 124 |



# QC Association Summary

Client: Cabot Oil  
Project/Site: PASUS-Dimock-AMEC-102011

TestAmerica Job ID: NUJ3361

## Pesticides

### Analysis Batch: U018963

| Lab Sample ID    | Client Sample ID       | Prep Type | Matrix | Method  | Prep Batch |
|------------------|------------------------|-----------|--------|---------|------------|
| 11J6413-BLK1     | Method Blank           | Dissolved | Water  | RSK 175 | 11J6413_P  |
| 11J6413-BS1      | Lab Control Sample     | Dissolved | Water  | RSK 175 | 11J6413_P  |
| 11J6413-MS1      | Matrix Spike           | Dissolved | Water  | RSK 175 | 11J6413_P  |
| 11J6413-MSD1     | Matrix Spike Duplicate | Dissolved | Water  | RSK 175 | 11J6413_P  |
| NUJ3361-01       | Well 1                 | Dissolved | Water  | RSK 175 | 11J6413_P  |
| NUJ3361-01 - RE2 | Well 1                 | Dissolved | Water  | RSK 175 | 11J6413_P  |

### Prep Batch: 11J6413\_P

| Lab Sample ID    | Client Sample ID       | Prep Type | Matrix | Method       | Prep Batch |
|------------------|------------------------|-----------|--------|--------------|------------|
| 11J6413-BLK1     | Method Blank           | Dissolved | Water  | RSK 175/3810 |            |
| 11J6413-BS1      | Lab Control Sample     | Dissolved | Water  | RSK 175/3810 |            |
| 11J6413-MS1      | Matrix Spike           | Dissolved | Water  | RSK 175/3810 |            |
| 11J6413-MSD1     | Matrix Spike Duplicate | Dissolved | Water  | RSK 175/3810 |            |
| NUJ3361-01       | Well 1                 | Dissolved | Water  | RSK 175/3810 |            |
| NUJ3361-01 - RE2 | Well 1                 | Dissolved | Water  | RSK 175/3810 |            |

# Lab Chronicle

Client: Cabot Oil  
Project/Site: PASUS-Dimock-AMEC-102011

TestAmerica Job ID: NUJ3361

**Client Sample ID: Well 1**

**Date Collected: 10/25/11 11:00**

**Date Received: 10/26/11 07:35**

**Lab Sample ID: NUJ3361-01**

**Matrix: Water**

| Prep Type | Batch Type | Batch Method | Run | Dilution Factor | Batch Number | Prepared or Analyzed | Analyst | Lab     |
|-----------|------------|--------------|-----|-----------------|--------------|----------------------|---------|---------|
| Dissolved | Prep       | RSK 175/3810 |     | 1.00            | 11J6413_P    | 10/27/11 12:30       | JLS2    | TAL NSH |
| Dissolved | Analysis   | RSK 175      |     | 1.00            | U018963      | 10/27/11 13:37       | JLS2    | TAL NSH |
| Dissolved | Prep       | RSK 175/3810 | RE2 | 1.00            | 11J6413_P    | 10/27/11 12:30       | JLS2    | TAL NSH |
| Dissolved | Analysis   | RSK 175      | RE2 | 40.0            | U018963      | 10/27/11 13:49       | JLS2    | TAL NSH |

## Laboratory References:

TAL NSH = TestAmerica Nashville, 2960 Foster Creighton Road, Nashville, TN 37204, TEL 800-765-0980

## Method Summary

Client: Cabot Oil  
Project/Site: PASUS-Dimock-AMEC-102011

TestAmerica Job ID: NUJ3361

| Method  | Method Description                | Protocol | Laboratory |
|---------|-----------------------------------|----------|------------|
| RSK 175 | Methane, Ethane, and Ethene by GC |          | TAL NSH    |

### Protocol References:

### Laboratory References:

TAL NSH = TestAmerica Nashville, 2960 Foster Creighton Road, Nashville, TN 37204, TEL 800-765-0980

# Certification Summary

Client: Cabot Oil  
Project/Site: PASUS-Dimock-AMEC-102011

TestAmerica Job ID: NUJ3361

| Laboratory            | Authority      | Program             | EPA Region | Certification ID |
|-----------------------|----------------|---------------------|------------|------------------|
| TestAmerica Nashville |                | ACIL                |            | 393              |
| TestAmerica Nashville | A2LA           | ISO/IEC 17025       |            | 0453.07          |
| TestAmerica Nashville | A2LA           | WY UST              |            | 453.07           |
| TestAmerica Nashville | AIHA - LAP     | IHLAP               |            | 100790           |
| TestAmerica Nashville | Alabama        | State Program       | 4          | 41150            |
| TestAmerica Nashville | Alaska         | Alaska UST          | 10         | UST-087          |
| TestAmerica Nashville | Arizona        | State Program       | 9          | AZ0473           |
| TestAmerica Nashville | Arkansas       | State Program       | 6          | 88-0737          |
| TestAmerica Nashville | CALA           | CALA                |            | 3744             |
| TestAmerica Nashville | California     | NELAC               | 9          | 1168CA           |
| TestAmerica Nashville | Colorado       | State Program       | 8          | N/A              |
| TestAmerica Nashville | Connecticut    | State Program       | 1          | PH-0220          |
| TestAmerica Nashville | Florida        | NELAC               | 4          | E87358           |
| TestAmerica Nashville | Illinois       | NELAC               | 5          | 200010           |
| TestAmerica Nashville | Iowa           | State Program       | 7          | 131              |
| TestAmerica Nashville | Kansas         | NELAC               | 7          | E-10229          |
| TestAmerica Nashville | Kentucky       | Kentucky UST        | 4          | 19               |
| TestAmerica Nashville | Kentucky       | State Program       | 4          | 90038            |
| TestAmerica Nashville | Louisiana      | NELAC               | 6          | 30613            |
| TestAmerica Nashville | Louisiana      | NELAC               | 6          | LA100011         |
| TestAmerica Nashville | Maryland       | State Program       | 3          | 316              |
| TestAmerica Nashville | Massachusetts  | State Program       | 1          | M-TN032          |
| TestAmerica Nashville | Minnesota      | NELAC               | 5          | 047-999-345      |
| TestAmerica Nashville | Mississippi    | State Program       | 4          | N/A              |
| TestAmerica Nashville | Montana        | MT DEQ UST          | 8          | NA               |
| TestAmerica Nashville | New Hampshire  | NELAC               | 1          | 2963             |
| TestAmerica Nashville | New Jersey     | NELAC               | 2          | TN965            |
| TestAmerica Nashville | New York       | NELAC               | 2          | 11342            |
| TestAmerica Nashville | North Carolina | North Carolina DENR | 4          | 387              |
| TestAmerica Nashville | North Dakota   | State Program       | 8          | R-146            |
| TestAmerica Nashville | Ohio           | OVAP                | 5          | CL0033           |
| TestAmerica Nashville | Oklahoma       | State Program       | 6          | 9412             |
| TestAmerica Nashville | Oregon         | NELAC               | 10         | TN200001         |
| TestAmerica Nashville | Pennsylvania   | NELAC               | 3          | 68-00585         |
| TestAmerica Nashville | Rhode Island   | State Program       | 1          | LAO00268         |
| TestAmerica Nashville | South Carolina | State Program       | 4          | 84009            |
| TestAmerica Nashville | South Carolina | State Program       | 4          | 84009            |
| TestAmerica Nashville | Tennessee      | State Program       | 4          | 2008             |
| TestAmerica Nashville | Texas          | NELAC               | 6          | T104704077-09-TX |
| TestAmerica Nashville | USDA           | USDA                |            | S-48469          |
| TestAmerica Nashville | Utah           | NELAC               | 8          | TAN              |
| TestAmerica Nashville | Virginia       | NELAC Secondary AB  | 3          | 460152           |
| TestAmerica Nashville | Virginia       | State Program       | 3          | 00323            |
| TestAmerica Nashville | Washington     | State Program       | 10         | C789             |
| TestAmerica Nashville | West Virginia  | West Virginia DEP   | 3          | 219              |

Accreditation may not be offered or required for all methods and analytes reported in this package. Please contact your project manager for the laboratory's current list of certified methods and analytes.

## COOLER RECEIPT



NUJ3361

Cooler Received/Opened On 10/26/2011 @ 0735

1. Tracking # 3923 (last 4 digits, FedEx)

Courier: FedEx IR Gun ID 97460373

2. Temperature of rep. sample or temp blank when opened: 2.5 Degrees Celsius

3. If Item #2 temperature is 0°C or less, was the representative sample or temp blank frozen? YES NO...NA

4. Were custody seals on outside of cooler? YES...NO...NA

If yes, how many and where: 1 (Front)

5. Were the seals intact, signed, and dated correctly? YES...NO...NA

6. Were custody papers inside cooler? YES...NO...NA

I certify that I opened the cooler and answered questions 1-6 (initial) DA

7. Were custody seals on containers: YES NO and Intact YES...NO...NA

Were these signed and dated correctly? YES...NO...NA

8. Packing mat'l used? Bubblewrap Plastic bag Peanuts Vermiculite Foam Insert Paper Other None

9. Cooling process: Ice Ice-pack Ice (direct contact) Dry ice Other None

10. Did all containers arrive in good condition (unbroken)? YES...NO...NA

11. Were all container labels complete (#, date, signed, pres., etc)? YES...NO...NA

12. Did all container labels and tags agree with custody papers? YES...NO...NA

13a. Were VOA vials received? YES...NO...NA

b. Was there any observable headspace present in any VOA vial? YES...NO...NA

14. Was there a Trip Blank in this cooler? YES NO NA If multiple coolers, sequence # DA

I certify that I unloaded the cooler and answered questions 7-14 (initial) DA

15a. On pres'd bottles, did pH test strips suggest preservation reached the correct pH level? YES...NO...NA

b. Did the bottle labels indicate that the correct preservatives were used YES...NO...NA

16. Was residual chlorine present? YES...NO...NA

I certify that I checked for chlorine and pH as per SOP and answered questions 15-16 (initial) DA

17. Were custody papers properly filled out (ink, signed, etc)? YES...NO...NA

18. Did you sign the custody papers in the appropriate place? YES...NO...NA

19. Were correct containers used for the analysis requested? YES...NO...NA

20. Was sufficient amount of sample sent in each container? YES...NO...NA

I certify that I entered this project into LIMS and answered questions 17-20 (initial) DA

I certify that I attached a label with the unique LIMS number to each container (initial) DA

21. Were there Non-Conformance issues at login? YES...NO Was a PIPE generated? YES...NO...#



## TestAmerica

Environ Monit Assess (2008) 142:175–183

Regulatory program: ☐ DW ☐ NPDES ☐ RCRA ☒ Other

DA10-27-11

DIM0067057